We claim:

1. A system comprising:

an under-run forecasting mechanism to estimate a time at which a supply of data packets will be exhausted to generate an under-run predicted time;

a statistics monitoring mechanism to measure fluctuations in arrival of data packets to the supply of data packets; and

a playback queuing mechanism to build latency in the supply of data packets based on the under-run predicted time and the measured fluctuations in arrival of data packets.

2. The system of claim 1, wherein the system is adapted to send data packets from the playback queuing mechanism to a client on a network to play data from the data packets.

3. The system of claim 1, wherein the system is adapted to send data packets from the playback queuing mechanism to a mixer on a network to forward the data packets to client on the network to play data from the data packets.

4. The system of claim 1, wherein each data packet in the supply of data packets includes data representing a part of a multimedia stream.

5. The system of claim 1, wherein each data packet in the supply of data packets includes data representing a part of a video stream.

6. The system of claim 1, wherein the under-run forecasting mechanism is adapted to update the under-run predicted time.

7. The system of claim 1, wherein the under-run forecasting mechanism is adapted to update the under-run predicted time based on a calculation of a time duration for a playback device to complete playing data provided to the playback device.

8. The system of claim 1, wherein the playback queuing mechanism includes a switch to select a latency-building mode or a streaming mode.

9. The system of claim 1, wherein the system further includes decision-based logic to determine a target latency.

10. The system of claim 1, wherein the system further includes decision-based logic to determine a target latency based on a time difference between an updated under-run predicted time and an absolute system time.

11. The system of claim 1, wherein the system further includes a playback device to play data from the data packets.

12. A system comprising:

a processor;

a bus;

a memory coupled to the processor by the bus, the memory, at least temporarily, to store data from a machine-readable medium having processor instructions stored thereon for execution by the processor to perform a method comprising:

generating an under-run predicted time for a supply of data packets;

measuring fluctuations in arrival of data packets to the supply of data packets;

building latency in the supply of data packets based on the under-run predicted time and the measured fluctuations in arrival of data packets; and

a connection to receive the data packets from a network.

13.   The system of claim 12, wherein the system is adapted to send the data packets to a client on a network to play data from the data packets.

14.   The system of claim 12, wherein the system is adapted to send data packets to a mixer on a network to forward the data packets to client on the network to play data form the data packets.

15.   The system of claim 12, wherein each data packet in the supply of data packets includes data representing a part of a multimedia stream.

16.   The system of claim 12, wherein each data packet in the supply of data packets includes data representing a part of a video stream.

17.   The system of claim 12, wherein the system is a computer.

18.   The system of claim 12, wherein the system includes a playback device to play data from the data packets.

19.   A method comprising:
        generating an under-run predicted time for a supply of data packets;
        measuring fluctuations in arrival of data packets to the supply of data packets;
        building latency in the supply of data packets based on the under-run predicted time and the measured fluctuations in arrival of data packets.

20.   The method of claim 19, wherein the method includes building latency in the supply of data packets if the supply of data packets is less than a target latency.

21.   The method of claim 19, wherein the method further includes imposing no queuing if it is determined that building latency in the supply of data packets requires queuing data at a level more than a threshold amount to maintain a stable stream of data.

22.   The method of claim 19, wherein the method further includes updating the under-run predicted time based on a comparison of the under-run predicted time with a current time to provide a running under-run predicted time.

23.   The method of claim 22, wherein the method further includes generating a target latency as twice a standard deviation of time differences between the running under-run predicted time and an absolute system time.

24.   The method of claim 22, wherein updating the under-run predicted time based on a comparison of the under-run predicted time with a current time includes adding an amount time for playing back a supply of data packets to the under-run predicted time, if the under-run predicted time is greater than or equal to the current time.

25.   The method of claim 19, wherein the method further includes flushing stale data caught in the building of latency.

26.   The method of claim 19, wherein measuring fluctuations in arrival of data packets to the supply of data packets includes monitoring a characteristic of previously predicted under-run times.

27.   The method of claim 19, wherein the method further includes operating in a streaming mode if no under-run is present or if an under-run is of short duration.

28.   The method of claim 19, wherein the method further includes sending the data packets to a client on a network to play data from the data packets.

29.   The method of claim 19, wherein the method further includes sending the data packets to a mixer on a network to forward the data packets to client on the network to play data form the data packets.

30.   The method of claim 19, wherein measuring fluctuations in arrival of data packets to the supply of data packets includes measuring fluctuations in arrival of data packets to the supply of data packets received from a network.

5   31.   The method of claim 19, wherein the method further includes playing data form the data packets.

32.   The method of claim 19, wherein the method further includes performing the method for multimedia data packets.

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33.   A machine-readable medium having processor instructions stored thereon for execution by a processor to perform a method comprising:

generating an under-run predicted time for a supply of data packets;

measuring fluctuations in arrival of data packets to the supply of data packets;

15   building latency in the supply of data packets based on the under-run predicted time and the measured fluctuations in arrival of data packets.

34.   The machine-readable medium of claim 33, wherein the processor instructions stored thereon for execution by a processor further includes instructions to perform the

20   method further including building latency in the supply of data packets if the supply of data packets is less than a target latency.

35.   The machine-readable medium of claim 33, wherein the processor instructions stored thereon for execution by a processor further includes instructions to perform the

25   method further including imposing no queuing if it is determined that building latency in the supply of data packets requires queuing data at a level more than a threshold amount to maintain a stable stream of data.

36.   The machine-readable medium of claim 33, wherein the processor instructions

30   stored thereon for execution by a processor further includes instructions to perform the

method further including updating the under-run predicted time based on a comparison of the under-run predicted time with a current time to provide a running under-run predicted time.

5   37.   The machine-readable medium of claim 36, wherein updating the under-run predicted time based on a comparison of the under-run predicted time with a current time includes adding an amount time to the under-run predicted time for playing back a supply of data packets, if the under-run predicted time is greater than or equal to the current time.

10   38.   The machine-readable medium of claim 33, wherein the processor instructions stored thereon for execution by a processor further includes instructions to perform the method further including sending the data packets to a client on a network to play data from the data packets.

15   39.   The machine-readable medium of claim 33, wherein the processor instructions stored thereon for execution by a processor further includes instructions to perform the method further including sending the data packets to a mixer on a network to forward the data packets to a client on the network to play data form the data packets.

20   40.   The machine-readable medium of claim 33, wherein the processor instructions stored thereon for execution by a processor further includes instructions to perform the method further including playing data form the data packets.

41.   The machine-readable medium of claim 33, wherein the processor instructions
25   stored thereon for execution by a processor further includes instructions to perform the method further including performing the method for multimedia data packets.

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